

CIRCUITRY FOR REDUCING LEAKAGE CURRENTS IN A PRE-CHARGE
CIRCUIT USING VERY SMALL MOSFET DEVICES

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ABSTRACT OF THE DISCLOSURE

A pre-charge circuit capable of pre-charging a high-impedance node of an operation circuit to a target voltage when a pre-charge signal driving the pre-charge circuit is enabled. The pre-charge circuit comprises: 1) a charge voltage circuit for charging an internal common node of the pre-charge circuit to the target voltage when the pre-charge signal is enabled; 2) a transmission gate switch for coupling the internal node to the high-impedance node when the pre-charge signal is enabled, the transmission gate switch comprising a first N-channel transistor having a drain coupled to the high-impedance node, a gate coupled to a Logic 1 when the pre-charge signal is enabled, and a source coupled to the internal common node; and 3) a gate-biasing circuit driven by the pre-charge signal, wherein the gate-biasing circuit is off when the pre-charge signal is enabled and generates a negative Vgs bias on the first N-channel transistor when the pre-charge signal is disabled to thereby reduce leakage current in said first N-channel transistor.